

Customer No.: 31561
Docket No.: 10232-US-PA
Application No.: 10/605,345

REMARKS

Present Status of Application

Claims 1-11, 13-21, and 23 remain pending in the application. Claims 1-3, 7, 9, 10, 12-16, 18, 19, and 23 are rejected under U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Lu et al. (US Patent No. 6,440,836; hereinafter Lu). Claims 6 and 17 are rejected under U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Lu and Cronin et al. (US Patent No. 6,140,703; hereinafter Cronin). Claims 4-5 and 20-21 are rejected under U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Lu and Agarwala (US Patent No. 5,376,584). Claim 8 is rejected under U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Lu and Kim et al. (US Patent No. 6,417,089; hereinafter Kim). Claim 11 is rejected under U.S.C. 103(a) as being unpatentable over applicant's admitted prior art (AAPA) in view of Lu and Higdon et al. (US Patent No. 6,375,062; hereinafter Higdon).

Claims 1 and 13 have been amended for clarification purposes and for correcting informalities. Applicant believes that these changes do not introduce new matter and reconsideration of those claims is respectfully requested. In view of the above amendments and the following discussions, a notice of allowance is respectfully solicited.

Discussion for 35 U.S.C. 103 rejections

Claims 1-3, 7, 9, 10, 12-16, 18, 19 and 23 are rejected under U.S.C. 103(a) as

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being unpatentable over AAPA in view of Lu. Claims 6 and 17 are rejected under U.S.C. 103(a) as being unpatentable over AAPA in view of Lu and Cronin. Claims 4-5 and 20-21 are rejected under U.S.C. 103(a) as being unpatentable over AAPA in view of Lu and Agarwala. Claim 8 is rejected under U.S.C. 103(a) as being unpatentable over AAPA in view of Lu and Kim. Claim 11 is rejected under U.S.C. 103(a) as being unpatentable over AAPA in view of Lu and Higdon. Applicant respectfully traverses the rejections for at least the reason set for below.

1. With respect to "Response to Arguments" of the Office Action at page 12, Claims 1 and 13 have been amended to clearly recite the features without raising new issue.

2. Applicant further repeats some previous arguments to respond the same rejection reasons from the Office, under the newly amended independent claims 1 and 13. In comparing with AAPA and Lu, AAPA (see FIG. 1F and FIG. 1G), the first reflow process is performed without protection of the adhesion layer on the polymer layer 108. The photoresist layer 120 is directly removed from the polymer layer 108. This process of AAPA would damage the polymer layer 208.

Lu is cited in combination with AAPA, however, Lu in FIG. 3J still fails to disclose that the reflow process is performed while the adhesion layer 82 still remains. In addition, Lu never considers the situation when the polymer layer is further formed on the passivation layer 76 at all, therefore Lu apparently does not equally disclose the claimed features. Further, the etching process (col. 8, lines 60-63) is to remove

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the photoresist layer 110 with the layer 82, 96 without specific consideration the damage of the wafer, which may even have the polymer layer.

For at least the foregoing reasons, Lu fails to disclose the missing features in AAPA.

3. Further with respect to dependent claim 13, first under-bump-metallurgy layer remains covering over the active surface of the wafer while performing the first reflow process. In dependent claims 23, more specifically, while the first reflow is performed, the polymer layer still remains under the first under-bump-metallurgy layer in protection.

4. With respect to dependent claims 4-6, 8, 11, 17, and 20-21, the Office Action further relied on the references Cronin, Agarwala, Kim or Higdon for teaching additional features recited in dependent claims.

Accordingly, the method of the present invention is patentably distinct from the prior art reference because AAPA or Lu, either alone or in combination, fails to disclose all limitations of independent claim 1 or 13. However, neither of the references Cronin, Agarwala, Kim or Higdon is unable to remedy the deficiencies of AAPA or the reference Lu. Therefore, it is respectfully submitted that claims 4-6, 8, 11, 17 and 20-21 patentably distinguish over the cited references, either alone or in combination,

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for at least the reasons stated above as well as for the additional features that these claims recite.

For at least the foregoing reasons, Applicant respectfully submits that independent claims 1 and 13 patentably define over the prior art references, and should be allowed. For at least the same reasons, dependent claims 2-11 and 14-21 and 23 patentably define over the prior art references as well.

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CONCLUSION

In view of the foregoing, it is believed that all pending claims 1-11, 13-21 and 23 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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Respectfully submitted,

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